REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination are respectfully requested.

I. Informalities

Claims 2-4 and 6-8 were objected to in view of various informalities identified in item 6 on page 3 of the Office Action. Withdrawal of this objection is respectfully submitted since claims 2-4 and 6-8 have been amended to resolve the problems identified by the Examiner.

II. Amendments to the Claims

Independent claims 1, 5, 9 and 10 have been amended to clarify features of the invention recited therein and to further distinguish the present invention from the references relied upon in the rejections discussed below. Support for these amendments can be found, at least, in paragraphs [0037] and [0047] and equations 4 and 11 of the specification.

Claims 11-18 have been added as dependent claims. Support for new claims 11-18 can be found, at least, in paragraphs [0036], [0037] and [0047] and equations 4 and 11 of the specification.

It is also noted that claims 1-10 have been amended to make a number of editorial revisions thereto. These editorial revisions have been made to place the claims in better U.S. form. Further, these editorial revisions have not been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the

Doctrine of Equivalents.

III. 35 U.S.C. § 103(a) Rejection

Claims 1, 5, 9 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Krishnamurthy (U.S. 6,256,038), Bronskill (U.S. 6,201,549) and Kuragano (JP 62135965). This rejection is believed clearly inapplicable to amended independent claims 1, 5, 9 and 10 and the claims that depend therefrom for the following reasons.

Amended independent claim 1 recites a computer aided design system including, in part, a first fundamental form computing device for computing coefficients of a first fundamental form at a mesh point of the mesh, the coefficients of the first fundamental form being defined at the mesh point by first-order differential values of the mesh point, and a second fundamental form computing device for computing coefficients of a second fundamental form at the mesh point, the coefficients of the second fundamental form being defined at the mesh point by a product of second-order differential values of the mesh point and a normal vector of the mesh at the mesh point.

Initially, please note that the above-described 35 U.S.C. § 103(a) rejection acknowledges that Krishnamurthy and Bronskill fail to disclose or suggest the features of the first fundamental form computing device and the second fundamental form computing device, and relies on Kuragano for teaching the features of the claimed invention that are admittedly lacking from Krishnamurthy and Bronskill.

However, in view of the above-identified amendments to claim 1, which clarify the structure/operation of the first fundamental form computing device and the second fundamental

form computing device, it is submitted that Kuragano also fails to disclose or suggest the above-mentioned distinguishing features now required by the first and second fundamental form computing devices, as recited in amended independent claim 1.

Rather, Kuragano merely teaches that a free curved surface preparing method includes (i) specifying first and second adjacent patches S (u,v)1 and S(u,v)2, (ii) obtaining first vectors including two tangent vectors, one of the tangent vectors being in a direction along a sharing border of the first patch and the other of the tangent vectors being in a direction that crosses the sharing border of the first patch, and (iii) obtaining second vectors including two tangent vectors, one of the tangent vectors being in a direction along a sharing border of the second patch and the other of the tangent vectors being in a direction that crosses the sharing border of the second patch. In addition, Kuragano teaches that the first vectors are obtained by a first-order differentiation of a function for showing the first patch, and that the second vectors are obtained by a first order differentiation of a function for showing the second patch (see translation of abstract and constitution).

Thus, in view of the above, it is clear that Kuragano teaches that the first vectors are obtained by a first-order differentiation of the function for showing the first patch, and that the second vectors are obtained by a first-order differentiation of the function for showing the second patch, but fails to disclose or suggest that the coefficients of the first fundamental form are defined at the mesh point by first-order differential values of the mesh point, and that the coefficients of the second fundamental form are defined at the mesh point by a product of second-order differential values of the mesh point and a normal vector of the mesh at the mesh point, as recited in claim 1.

Applicants further note that the above-described distinguishing limitations include terms of art (i.e., terms that are understood by a person of ordinary skill in the art of the present invention) that may not be clear to a person that is not skilled in the art of the present invention. Specifically, Applicants note that the phrase "coefficients of the first fundamental form at the mesh point defined at the mesh point by first-order differential values of the mesh point," as recited in claim 1, refers to slopes at a curved surface of the mesh point and tangent vectors at the mesh point. Moreover, Applicants note that the phrase "the coefficients of the second fundamental form are defined at the mesh point by a product of second-order differential values of the mesh point and a normal vector of the mesh at the mesh point," as recited in claim 1, refers to variations of slopes at the curved surface of the mesh point (i.e., curvatures).

Thus, in view of the above description of the terms of the present art, it is clear that Kuragano teaches that the first vectors are obtained by a first-order differentiation of the function for showing the first patch, and that the second vectors are obtained by a first-order differentiation of the function for showing the second patch, but fails to disclose or suggest the coefficients of the first fundament form that are defined at the mesh point by the first-order differential values (e.g., the slopes at the cured surface of the mesh point and the tangent vectors at the mesh point), and the coefficients of the second fundamental form that are defined at the mesh point by the product of the second-order differential values of the mesh point and the normal vector of the mesh point (e.g., the variations of slopes at the curved surface of the mesh point, meaning curvatures), as required by claim 1.

Therefore, because of the above-mentioned distinctions it is believed clear that claim 1 and claims 2-4 that depend therefrom would not have been obvious or result from any

combination of Krishnamurthy, Bronskill and Kuragano.

Please note that one of the benefits of the structure required by claim 1 is that, since the coefficients of the second fundamental form are obtained at the mesh point, a free-form surface can be reproduced while retaining a continuity of the curvature. In other words, because claim 1 requires that the coefficients of the second fundamental form are obtained at the mesh point, a free-form surface that retains curvature continuity can be reproduced. In light of the discussion above, the combination of Krishnamurthy, Bronskill and Kuragano does not provide the above-mentioned benefits of the structure required by claim 1, because Krishnamurthy, Bronskill and/or Kuragano fail to disclose or suggest the features of the claimed second fundamental form computing device.

Furthermore, there is no disclosure or suggestion in Krishnamurthy, Bronskill and/or Kuragano or elsewhere in the prior art of record which would have caused a person of ordinary skill in the art to modify Krishnamurthy, Bronskill and/or Kuragano to obtain the invention of independent claim 1. Accordingly, it is respectfully submitted that independent claim 1 and claims 2-4, 11 and 12 that depend therefrom are clearly allowable over the prior art of record.

Amended independent claims 5, 9 and 10 are directed to a program, a system and a program, respectively and each recite features that correspond to the above-mentioned distinguishing features of independent claim 1. Thus, for the same reasons discussed above, it is respectfully submitted that independent claims 5, 9 and 10 and claims 6-8 and 13-18 that depend therefrom are allowable over the prior art of record.

IV. Conclusion

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance and an early notification thereof is earnestly requested. The Examiner is invited to contact the undersigned by telephone to resolve

The Commissioner is authorized to charge any deficiency or to credit any overpayment associated with this communication to Deposit Account No. 23-0975, with the EXCEPTION of deficiencies in fees for multiple dependent claims in new applications.

Respectfully submitted,

Masami MIURA et al.

/Andrew L. Dunlap/
2009.06.19 10:40:36 -04'00'

By:_____
Andrew L. Dunlap
Registration No. 60,554
Attorney for Applicants

ALD/led
Washington, D.C. 20005-1503
Telephone (202) 721-8200
Facsimile (202) 721-8250
June 19, 2009